

What is claimed is:

1. An integrated biochemical sensor package comprising:  
a platform;

5 a waveguide having an upper surface affixed to said platform, said waveguide having a thin layer of chemical coating affixed on said upper surface; and

first and second reflective fixtures coupled to opposite extremes of said waveguide and touching said platform.

2. The integrated biochemical sensor package according to Claim 1 further comprising:

a lead frame extending from said platform on a place parallel to said thin layer of coating;

a first dimple underlying said first reflective fixture;

a light source embedded in said first dimple and arranged to emit light outward towards said first reflective fixture; and

20 a detector means embedded in said platform and underlying said second reflective fixture.

3. The integrated biochemical sensor package according to Claim 1 wherein said waveguide is made of a light

transmissive material.

4. The integrated biochemical sensor package according to  
Claim 2 wherein said lead frame has three pins extending  
5 outward from said platform.

5. The integrated biochemical sensor package according to  
Claim 2 wherein said lead frame has two pins and further  
comprising a power source embedded in said platform and  
having a first lead coupled to said light source and a  
second lead coupled to said detector.

6. The integrated biochemical sensor package according to  
Claim 1 wherein said light source is a series combination of  
a diode and resistor.

7. The integrated biochemical sensor package according to  
Claim 2 wherein said detector means is an photo diode  
amplifier chip.

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8. The integrated biochemical sensor package according to  
Claim 2 wherein said light source is a single high intensity  
light emitting diode.

9. The integrated biochemical sensor package according to  
Claim 1 wherein said platform forms a substantially  
rectangular shaped enclosure for housing various sensor  
components.

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10. The integrated biochemical sensor package according to  
Claim 1 wherein said platform has a substantially  
trapezoidal shape.

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11. The integrated biochemical sensor package according to  
Claim 1 wherein said waveguide is integrally molded on said  
platform.

12. The integrated biochemical sensor package according to  
Claim 1 further comprising a second dimple underlying said  
second reflective fixture wherein said detector means sits  
inside said second dimple.

20 13. A miniaturized integrated biochemical sensor for  
indicating the presence of a given sample based comprising:  
a sensor platform having a substantially rectangular  
box shape form, said platform having a substantially flat  
upper surface and at least one end;  
a waveguide coupled to said upper surface of said

platform, said waveguide having a first end and a second end opposite from one another;

5 a first reflective fixture coupled to said first end of said waveguide and touching said upper surface of said platform;

a second reflective fixture coupled to said second end of said waveguide and touching said upper surface of said platform;

a light source embedded in said platform under said first reflective fixture; and

a detector embedded in said platform opposite said light source about said one end of said platform and underlying said second reflective fixture.

14. The miniaturized integrated biochemical sensor of Claim 13 wherein said light source is a light emitting diode.

15. The miniaturized integrated biochemical sensor of Claim 13 further comprising:

20 a three-pin lead frame extending from said one end of said platform; and

a first dimple forming a substantially cup-shaped area on one pin of said lead frame and surrounding said light source under said first reflective fixture.

16. The miniaturized integrated biochemical sensor of Claim 13 further comprising:

a two-pin lead frame extending from said one end of said platform; and

5 a power source embedded in said platform and having a first lead coupled to said light source and a second lead coupled to said detector.

17. The miniaturized integrated biochemical sensor of Claim 13 wherein a thin layer of chemical coating is deposited on said waveguide.

18. A sensor package suitable for biochemical sensing applications comprising:

a substantially rectangular device platform;  
a light transmissive waveguide coupled to an upper surface of said platform and a surface with an indicator chemistry coat deposited thereon;

20 first and second reflective fixtures coupled to opposite ends of said waveguide about said platform;

a lead frame embedded in said platform and having a plurality of pins extending out from one end of said platform, said lead frame having a first dimple underlying said first reflective fixture and a second dimple underlying

1 said second reflective fixture;

2 a light source sitting in said first dimple under said  
3 first reflective fixture; and

4 a detector means sitting in said second dimple under  
5 said second reflective fixture, said detector means  
configured about said platform to optically receive light  
from said light source via said first reflective fixture  
through said waveguide and then through said second  
reflective fixture.

19. The sensor package according to claim 19 further  
including a power source embedded in said platform and  
having a first lead coupled to said light source and a  
second lead coupled to said detector means.

20. A manufacturing method of forming a miniaturized  
integrated sensor platform comprising the steps of:

stamp~~ing~~ out a substantially rectangular shaped  
platform from an epoxy material;

embedding a lead frame in said platform about one end;  
forming first and second dimple members about opposite  
ends of the portion of said lead frame that exists in said  
platform;

placing a light source in said first dimple and a

detector in said second dimple;

placing a light guide on an upper surface of said platform; and

5 placing first and second reflective fixtures at opposite end of said light guide over said first and second dimples of said lead frame.